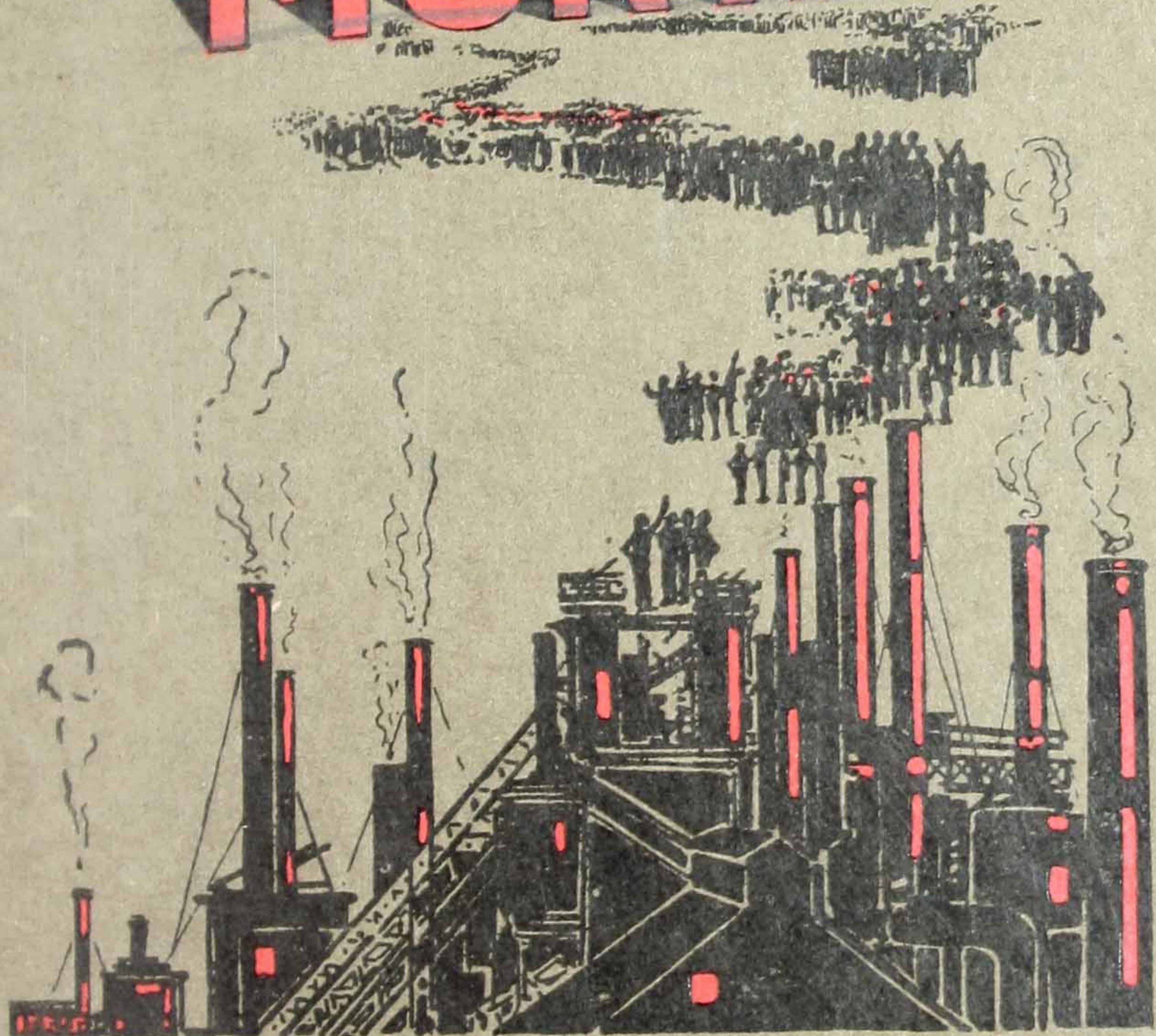


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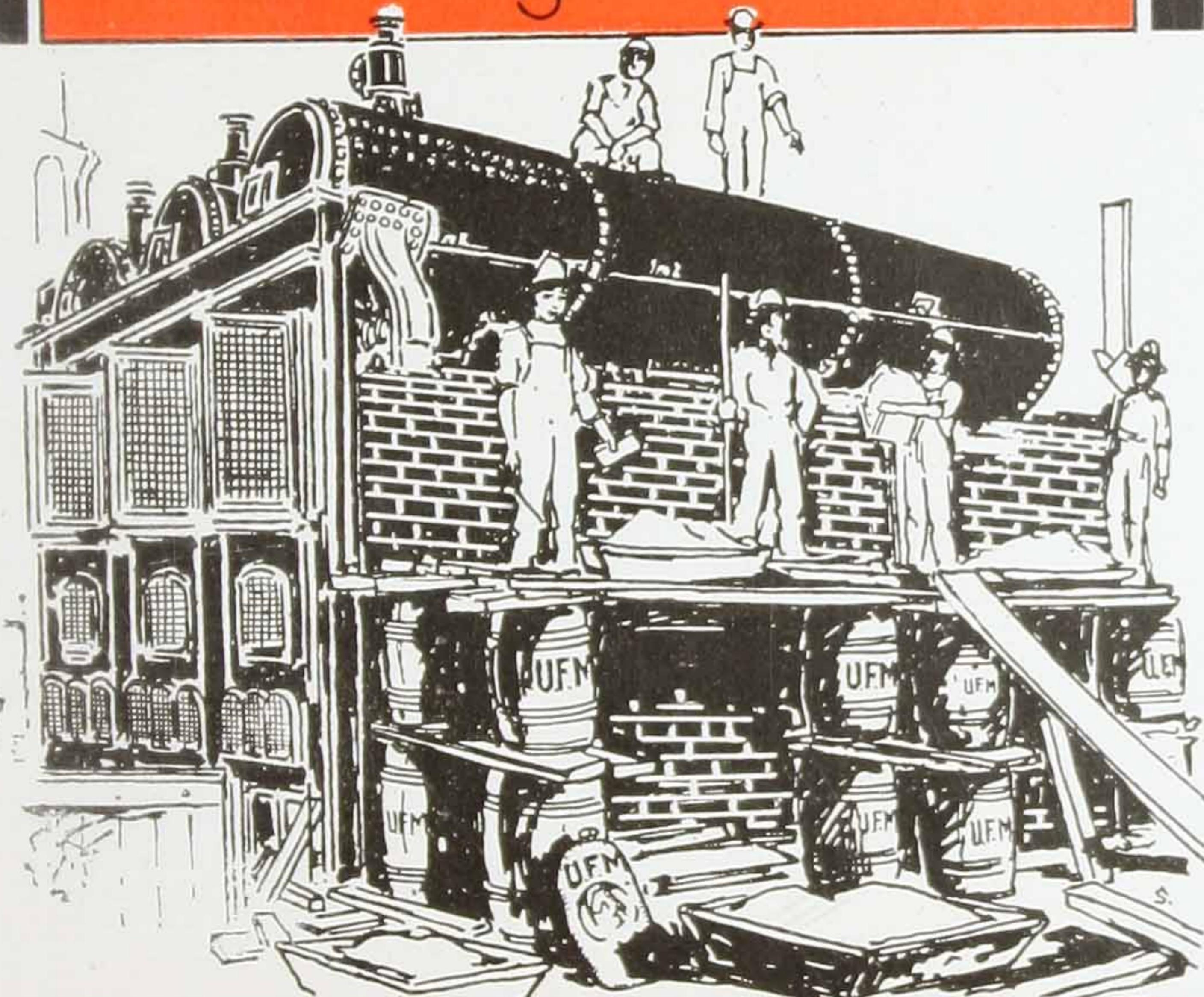
FEB 1 1918

UNIVERSAL FIRE MORTAR



UNIVERSAL FIRE MORTAR

The Elastic High Temperature
Bonding Material



PITTS & KITTS
MFG. & SUPPLY CO.

GENERAL OFFICES
WOOLWORTH BUILDING
NEW YORK

PHILADELPHIA

BALTIMORE



GUARANTEE.

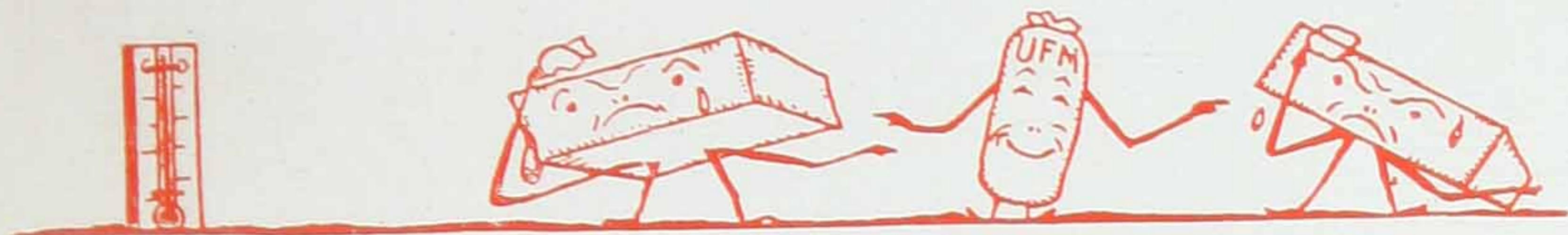
The manufacturers and the distributors of **UNIVERSAL FIRE MORTAR** stand unqualifiedly behind the guarantee to add 100% to the life of your firebrick if set up with

UNIVERSAL FIRE MORTAR

Every dollar invested by you in **UNIVERSAL FIRE MORTAR** must give you superior service and satisfaction.

PITTS & KITTS
MANUFACTURING AND SUPPLY CO.
WOOLWORTH BUILDING
NEW YORK





THE IDEAL BONDING MATERIAL

The realization and the announcement of the ideal bonding material for use in **HIGH TEMPERATURE INDUSTRIAL FURNACES** are of more than passing interest to every executive, superintendent and power plant manager in this country.

The demands of modern high-power furnaces for larger and still larger production has placed a burden on firebrick which has resulted in unusual specialization in this field, so that depending upon different operations, such as the character of ores, slags, temperatures and processes, different types of bricks and linings have been produced.

One serious and costly limitation on furnace life has been the lack of a bonding material that would not only bond but carry the enormous stresses of expansion and contraction attendant upon unusual temperature changes.

It is the purpose of this booklet to outline briefly a new bonding principle and to describe **UNIVERSAL FIRE MORTAR** and its applications.

UNIVERSAL FIRE MORTAR is a highly specialized, scientific combination of pure, high grade refractory materials made in a number of grades, each to be used in accordance with the type of brick employed, its operating condition and temperature. It is the product of years of research and test in the heart of the anthracite district, where it has been used under every adverse condition, and where it is now almost as well known as anthracite itself.





SERVICE

We want you to feel and to know that every word in this booklet is subject to your searching investigation and test—and backed by our guarantee of service and satisfaction.

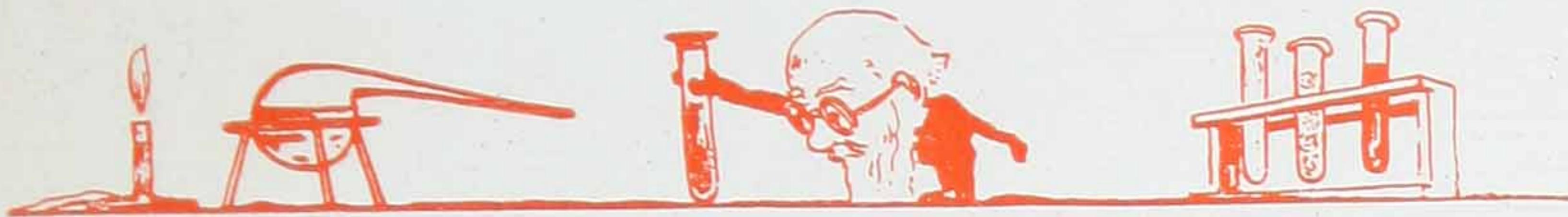
UNIVERSAL FIRE MORTAR compensates for the shrinkage of fire clay brick and is therefore ideal in any installation where fireclay brick can be used; thus **UNIVERSAL FIRE MORTAR** and fireclay brick make an ideal combination.

PENETRATION

UNIVERSAL FIRE MORTAR is scientifically compounded so as to form not only a perfectly elastic bond, but an elastic **PENETRATING GRIPPING** bond. The material penetrates $\frac{1}{32}$ of an inch into the brick—actually case-hardening the brick—preventing the usual fluxing out of the impurities with the consequent destruction of the internal bond of the brick itself as well as the usual external clay or cement bond.

UNIVERSAL FIRE MORTAR not only slightly penetrates, bonds and grips the brick, but it allows perfect flexibility for expansion and contraction, protecting the brick from the direct attack of the fires and sealing the combustion chamber against heat loss. It is the realization of the ideal bonding material.





ELASTICITY

UNIVERSAL FIRE MORTAR is the only elastic bonding refractory material which yields to temperature expansion and contraction of arches, walls and other firebrick structures. It is the only bonding material which has an actual fusion point above that of the brick with which it is used and **YET** has a viscosity and toughness high enough at its working temperature to permit **PERFECT FLEXIBILITY OF MOTION**.

This quality of **UNIVERSAL FIRE MORTAR** has yielded from 100 to 500% increase in the life of firebrick construction by preventing spalling and buckling alone. Instead of attempting to place between the firebrick a cement of sufficient rigidity to withstand the forces of expansion and contraction, (which from a mechanical standpoint is impossible as well as impracticable), we have provided a **PERFECT ELASTIC GRIPPING BOND**.

APPLICATION

UNIVERSAL FIRE MORTAR can be used for laying up or facing every type of firebrick, from the commonest slay to the highest grade of chromite brick. It can be used under every condition of industrial furnace temperature. There is a grade for every condition.

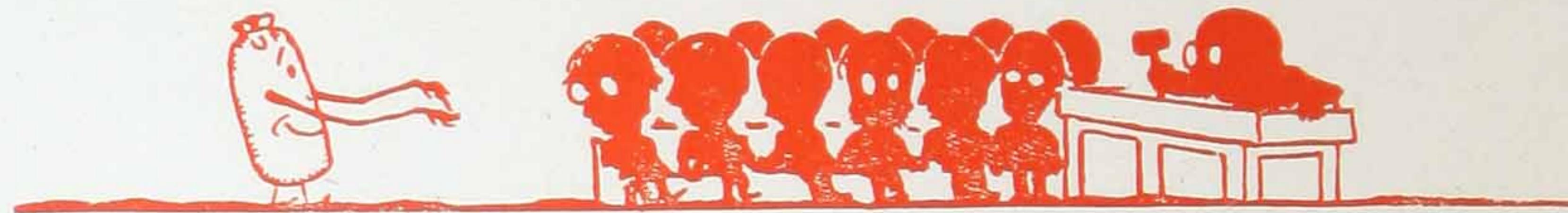
Its particular **APPLICATION** in your plant will best be met by our highly specialized organization and co-operation.

— ALWAYS AT YOUR SERVICE — PROPOSITION

Read our guarantee again.

Our proposition to you is simple. Every dollar spent on **UNIVERSAL FIRE MORTAR** must give you better service and satisfaction.

SPECIFY
U-F-M



TECHNOLOGIC PAPER

Bureau of Standards, No. 10

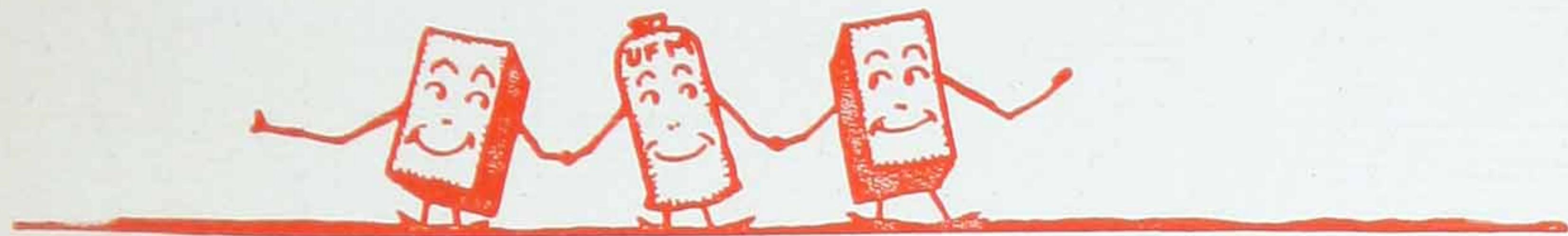
MELTING POINTS OF VARIOUS FIREBRICK

Fire Clay Brick	Minimum	1570° C.	2858° F.	
	Maximum	1750° "	3119° "	
Silica Brick	Minimum	1700° "	3092° "	
	Maximum	1705° "	3101° "	
Bauxite Brick	Minimum	1565° "	2849° "	
	Maximum	1760° "	3200° "	
Chromite Brick		2050° "	3722	"
Magnesite Brick		2165° "	3929	"

MELTING POINT OF PURE MATERIALS

Kaolin	1740° C.	3164° F.	
Pure Alumina	2050° "	3722° "	
Pure Silica	1750° "	3162° "	
Bauxite	1820° "	3308° "	
Bauxite Clay	1795° "	3263° "	
Chromite	2180° "	3956° "	





UNIVERSAL FIRE MORTAR INFORMATION SHEET

Gentlemen:

We are especially interested in the use of **U — F — M** for the following purposes.

Kind of Brick used:

Temperature of operation:

Kindly ship us by sufficient material to lay up brick. It is understood that no obligation will be incurred by us unless **U — F — M** gives us service as guaranteed by you on page one of this booklet.

Yours very truly,

SPECIFY
U-F-M



